



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,740	05/30/2001	Daping Chu	109678	5779
25944	7590	04/20/2005		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER DOUGHERTY, THOMAS M	
			ART UNIT 2834	PAPER NUMBER

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/866,740

Applicant(s)

CHU, DAPING

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 1/21/05 have been fully considered but they are not persuasive. The applicant indicates that the materials of Matsumoto are ferroelectric "with both ferroelectric and piezoelectric properties" and that "one skilled in the art would understand that the materials would always have to be ferroelectric" at page 7, lines 8-11. The applicant notes in the disclosure however that "Ferroelectric materials are a sub-set of piezoelectric materials." This can be found on page one in the final paragraph. Thus Matsumoto shows both.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16, 20, 21 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto et al. (US 3,754,214). Matsumoto et al. show (fig. 2) a device, comprising: a piezoelectric material layer (either of 42, 44) and a ferroelectric material layer (44, 42) clamped together, the ferroelectric material layer having a predetermined direction of polarization (inherent, or else the desired result of application of electrical or mechanical energy is not achieved, except by luck); and means for providing an input signal (1,3) for causing an induced output signal from the other layer

Art Unit: 2834

without causing a change in the predetermined direction of polarization (again, if the voltage application could cause a repolarization, the device would be useless), the induced output signal from the other layer having a phase determined by the predetermined direction of polarization. Note that as each of the claimed features is shown by Matsumoto, the functionality of the device is achievable.

A common electrode (50) is provided between the two layers (42, 44), an input electrode (46) is provided on one of the layers (42) and an output electrode (48) is provided on the other of the layers (44), the input (46) and output electrodes (48) being disposed on opposite sides of their respective layers compared with the common electrode (50).

The input electrode (46) is arranged on the ferroelectric material (42).

Claims 16 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmid (US 4,586,377). Schmid shows (fig. 1) a device, comprising: a piezoelectric material layer (2a) and a ferroelectric material layer (2b) clamped together (by threaded bolt 6), the ferroelectric material layer having a predetermined direction of polarization (inherent, or else the desired result of application of electrical or mechanical energy is not achieved, except by luck); and means for providing an input signal (electrical lead wires, not numbered) for causing an induced output signal from the other layer without causing a change in the predetermined direction of polarization (again, if the voltage application could cause a repolarization, the device would be useless), the induced output signal from the other layer having a phase determined by the predetermined direction of polarization. Note that as each of the claimed features is shown by Schmid,

Art Unit: 2834

the functionality of the device is achievable. Thus the means cited by Schmid is capable of performing the specified function. See col. 2, lines 51-53 for locations of the ferroelectric and piezoelectric elements. See also claims 1, 4, and 6 at least.

The claimed methodology is met by Schmid, the input signal applied is an acceleration, which input signal causes an output signal determined, as noted above, by the predetermined direction of polarization.

The input signal is applied to the ferroelectric material layer.

Claims 16, 18, 20, 21, 24, 25, 31, 32 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Perlman et al. (US 3,683,211). Perlman shows (fig. 3) a device (a transformer, see title), comprising: a piezoelectric material layer (14 or 18) and a ferroelectric material layer (18 or 14) clamped together (note that they are mechanically coupled at col. 1, lines 31-33), the ferroelectric material layer having a predetermined direction of polarization (inherent, or else the desired result of application of electrical or mechanical energy is not achieved, except by luck); and means for providing an input signal (electrical lead wires, not numbered) for causing an induced output signal from the other layer without causing a change in the predetermined direction of polarization (again, if the voltage application could cause a repolarization, the device would be useless), the induced output signal from the other layer having a phase determined by the predetermined direction of polarization. Note that as each of the claimed features is shown by the functionality of the device is achievable. Thus the means cited by Perlman et al. is capable of performing the specified function. The claimed methodology is met by Perlman et al., the input signal applied is an acceleration, which

Art Unit: 2834

input signal causes an output signal determined, as noted above, by the predetermined direction of polarization.

The input signal is applied to the ferroelectric material layer.

A common electrode (16) is provided between the two layers (14, 18), an input electrode (12) is provided on one of the layers (14) and an output electrode (18) is provided on the other of the layers (18), the input (12) and output electrodes (18) being disposed on opposite sides of their respective layers compared with the common electrode (16).

The input electrode (12) is arranged on the ferroelectric material (14).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Schmid (US 4,586,377). Given the invention of Schmid as noted above, he doesn't not the intended use of his device as an amplifier, a transformer or an inverter. Note however that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham* 2 USPQ2d 1647 (1987).

Art Unit: 2834

Claims 17-19 and 22-27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Matsumoto (US 3,754,214). Given the invention of Matsumoto as noted above, he doesn't not the intended use of his device as an amplifier, a transformer or an inverter. Note however that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham 2* USPQ2d 1647 (1987).

Claims 17, 19, 22, 23, 36 and 27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Perlman et al. (US 3,683,211). Given the invention of Perlman et al., as noted above, they don't note the intended use of his device as an amplifier, a comparator or an inverter. Note however that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham 2* USPQ2d 1647 (1987).

Claim Rejections - 35 USC § 103

Claims 28-30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Matsumoto (US 3,754,214) or Perlman et al. (US 3,683,211). Given either invention as described above, neither shows a further layer of ferroelectric material with an output having a magnitude proportional to the sum or difference of the magnitude of the respective input signals. It would have been obvious to one of ordinary skill in the

Art Unit: 2834

art to employ a further ferroelectric layer and a second input to the device, at the time of the invention since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

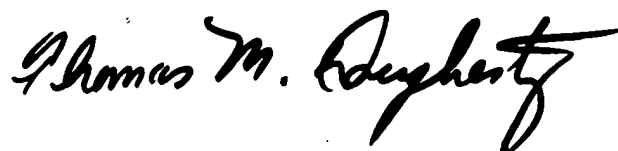
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additional prior art cited reads on at least some aspects of the claimed invention.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd
tmd

April 15, 2005



**TOM DOUGHERTY
PRIMARY EXAMINER**